MATERIAL SAFETY DATA SHEET

1. SUBSTANCE AND SOURCE IDENTIFICATION

National Institute of Standards and Technology
Standard Reference Materials Program
100 Bureau Drive, Stop 2320
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SRM Number: 1633b
MSDS Number: 1633b
SRM Name: Constituents Elements in Coal Fly Ash
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Description: This Standard Reference Material (SRM) is intended for use in the evaluation of analytical methods for the determination of constituent elements in coal fly ash or materials with a similar matrix. SRM 1633b is a bituminous coal fly ash that was sieved through a nominal sieve opening of 90 μm (170 mesh) and then blended to assure homogeneity. A unit of SRM 1633b consists of 75 g of powdered material.

Substance: Coal Fly Ash
Other Designations: **Coal Fly Ash** (coal ash; ashes)

2. COMPOSITION AND INFORMATION ON HAZARDOUS INGREDIENTS

Component	CAS Number	EINECS	Concentration (mass %)
Fly Ash Components	68131-74-8	268-627-4	Balance
Quartz	14808-60-7	238-878-4	≈23

Index, R/S Phrases (EC): EC Classification not determined.

3. HAZARD IDENTIFICATION

Major Health Hazards: Cancer hazard in humans.
Physical Hazards: Dust/air mixtures may ignite or explode.
Potential Health Effects:
Inhalation: Respiratory irritation and lung damage.
Skin absorption: Irritation.
Eye contact: Irritation.
Ingestion: Irritation.

Carcinogen Status:	Yes	No
National Toxicology Program (NTP) Report on Carcinogens	X	
International Agency for Research on Cancer (IARC) Monographs	X	
Occupational Safety and Health Administration (OSHA)		X

4. FIRST AID MEASURES

Skin Contact: Rinse affected area with soap and water for at least 15 minutes while removing contaminated clothing. Obtain medical assistance if necessary.
Eye Contact: Immediately flush eyes, including under the eyelids, with copious amounts of water for at least 15 minutes. Obtain medical assistance immediately.

Inhalation: If adverse effects occur, remove to uncontaminated area. If not breathing, give artificial respiration by qualified personnel. Get immediate medical attention.
Ingestion: If a large amount is swallowed, get medical attention.

5. Fire Fighting Measures

Fire and Explosion Hazards: Slight fire hazard. Dust/air mixtures may ignite or explode.
Extinguishing Media: Regular dry chemical, carbon dioxide, water, regular foam.
Fire Procedures: Use extinguishing agents appropriate for surrounding fire. Keep unnecessary people away, isolate hazard area and deny entry. Avoid inhalation of material or combustion by-products.

Flash Point (°C): Not Applicable **Method Used:** Not Applicable **Autoignition (°C):** Not Applicable

Flammability Limits in Air (Volume %): **UPPER:** Not Applicable
LOWER: Not Applicable

Flammability Class (OSHA): Not Applicable

6. Accidental Release Measures

Occupational Release: Collect spilled material in appropriate container for disposal. Keep out of water supplies and sewers. Keep unnecessary people away, isolate hazard area and deny entry. Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986.
Environmental Precautions: See "Section 13".
Clean-up Methods: Collect spilled material in appropriate container for proper disposal.

7. Handling and Storage

Storage: Store and handle in accordance with all current regulations and standards. Store in a tightly closed container. Keep separated from incompatible substances. Store in a cool, dry place. Store in a well-ventilated area.
Precautions for Safe Handling: See "Section 8".

8. Exposure Controls and Personal Protection

Hazardous Component	Nominal Concentration (%)	Exposure Limits and Toxicity Data
Quartz	23	OSHA TWA: 0.3 mg/m^3 (total particulate) OSHA TWA: 0.1 mg/m^3 (respirable particulate) ACGIH TWA: 0.05 mg/m^3 (respirable fraction) NIOSH TWA: 0.05 mg/m^3/10 hour(s) (respirable dust) UK MEL TWA: 0.3 mg/m^3 (respirable particulate)
Fly Ash Components	Balance	No occupational limits established

Engineering: An eye wash station and drench shower should be readily available near the handling and use areas.
Ventilation: Local exhaust ventilation system.
Respirator: Respiratory protection required under conditions of frequent use or heavy exposure.
Eye Protection: Wear safety goggles. **DO NOT** wear contact lenses in the laboratory.
Personal Protection: Wear chemically resistant gloves and clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Coal Fly Ash	
Appearance and Odor: fine grey powder; odorless	**Specific Gravity (water = 1):** > 1
Molecular Formula: not applicable	**Water Solubility (%):** 0.5

10. STABILITY AND REACTIVITY

Stability: **X** **Stable** ____ **Unstable**

Stable at normal temperature and pressure.

Conditions to Avoid: Avoid heat, flames, sparks and other sources of ignition. Avoid contact with incompatible materials.

Incompatibility (Materials to Avoid): Oxidizing materials, bases, halogens, acids, metal salts, metals, combustible materials.

Hazardous Decomposition or Byproducts: Miscellaneous decomposition products.

Hazardous Polymerization: ____ **Will Occur** **X** **Will Not Occur**

11. TOXICOLOGICAL INFORMATION

Route of Entry: **X** **Inhalation** **X** **Skin** **X** **Ingestion**

Health Hazards (Acute)

Inhalation: Exposure to fly ash dust may cause coughing, sneezing, upper respiratory tract irritation, and lung damage. Exposure to high concentrations of quartz may cause physical discomfort of the upper respiratory tract.
Skin Contact: Contact with quartz may cause irritation of intact skin due to mechanical abrasion. If the skin is abraded, a heavy growth of scar tissue may be induced.
Eye Contact: Fly ash dust may cause irritation. Marginal blepharitis and conjunctivitis appeared within 3 to 5 days of intraconjunctival application of fly ash. Quartz may cause irritation due to mechanical action.
Ingestion: Effects of quartz ingestion are due to mechanical action as crystalline silica is biologically inert.

Medical Conditions Generally Aggravated by Exposure: Respiratory disorders.

12. ECOLOGICAL INFORMATION

Adverse Effects: Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986.

13. DISPOSAL CONSIDERATIONS

Waste Disposal: Dispose in accordance with federal, state and local regulations. Keep out of water supplies and sewers.

14. TRANSPORTATION INFORMATION

DOT Registry: No classification assigned.

15. REGULATORY INFORMATION

U.S. REGULATIONS

SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370.21):

ACUTE: No
CHRONIC: Yes
FIRE: No
REACTIVE: No
SUDDEN RELEASE: No

EC CLASSIFICATION: Not assigned.

16. OTHER INFORMATION

Sources: MDL Information Systems, Inc., MSDS *Fly Ash,* 18 September 2003.